DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
PMB 2020
JOE FOSS BUILDING
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PIERRE, SOUTH DAKOTA 57501-3182
www.state.sd.us/denr

January 26, 2007

Mr. Bruce C. Macdonald, Ph.D.
Senior Program Manager
ENSR
1601 Prospect Parkway
Fort Collins, CO 80525

Dear Bruce Macdonald:

The Air Quality Program has completed the review of the Basin NextGen draft Ambient Monitoring Plan. Enclosed in Attachment 1 and 2 are the department's comments and some additional information for the plan.

The monitoring plan and standard operating procedures are comprehensive and will provide a good basis for the operation and management of the monitoring project. The one big issue is that EPA has amended 40 CRF Part 58 on October 17, 2006. The amendments are the cornerstone to several of the department's comments on the plan and standard operating procedures. A few comments are operational comments we feel will provide a higher quality monitoring project.

If you have questions or feel we need to talk about some of these issues please contact me at 605-773-6038. Thank you for supplying this information to the Air Quality Program for review. The department is look forward to working with your company on completing this project successfully.

Sincerely,

Brad Schultz

Brad Schultz
Environmental Senior Scientist
Air Quality Program

Attachments

CC: Cris Miller, P. E., Basin Electric Power Cooperative
Kyrik Rombough, SD DENR

Attachment 1

Basin NextGen Air Monitoring Plan
Department of Environment and Natural Resources Review
January 25, 2007

The following are the Department of Environment and Natural Resources (DENR) comments on the draft air monitoring plan for the Basin NextGen PSD project.

1. EPA has revised the monitoring regulations in 40 CFR Part 58 amended in October of 2006. The Plan must be updated to include any difference in quality assurance and reporting procedures created when EPA revised 40 CFR Part 58. One change made by EPA was the merging of Part 58, Appendix B into Appendix A. All references to Part 58 Appendix B must be changed to Appendix A.

2. The plan does not include the sampling for PM2.5 which could be an issue later. Sampling for PM2.5 at this time would eliminate one potential item that someone could use to challenge a future permit application. Also EPA could require the testing for PM2.5 by the time a permit application is submitted and no data would be available. Setting up a second sampling site at a later date to collect this data would be more costly later and could set back the permitting process for a year. DENR requests that Basin Electric consider collecting PM2.5 data as part of this monitoring project.

3. **Section 1.0 Introduction**

   - The introduction refers to the project location as near Pierre. I would suggest changing this to "Central South Dakota" in the entire document.

4. **Section 2.0 Source Environment Description**

   - The map in Figure 2-1 does not show the current location of the air monitoring site for the project. Please replace this map with the correct location and include a topography map of the area surrounding the site.
   - Land Use Section 2.3 needs to include a description of the land use in area around the monitoring site within 2 kilometers. In general there is no irrigated cropland in this part of Potter County. The only irrigated cropland is in the western edge of the county along Missouri River/ Lake Oahe.
   - Fourth paragraph in 2.2 Climate section: Seasonal wind directions in South Dakota are generally out of the northwest in the winter and southeast in the summer. See the attached wind rose showing the data from the Huron Airport weather station.
   - Section 2.5 Existing Sources: Aberdeen, is about 70 miles away and is the closest location that would have permitted air quality sources emitting gaseous pollutants. Closest permitted source for PM10 is in Gettysburg. The largest source of PM10 concentrations would be fugitive dust from farming activities in this area.

Distance and direction to the nearest acreage under active tillage should be included in this section.

5. **Section 3.0 Monitoring Program Description**

- Should Section 3.0 be titled Monitoring Site Description?
- Section 3.1 should include a proposed date of the beginning and end of the sampling project.
- We believe more details should be included in section 3.2 to discuss the reasons the selected monitoring site is representative of all the proposed sites for the power plant.
- Page 3-3, 1st full paragraph states the sampling schedule for PM10 will be every sixth day. This meets the minimum sampling schedule but we would suggest increasing this to every 3rd day to increase the number of sampling days used to compare the levels to the PM10 standard. The co-located monitor will also be running on an every 6th day schedule so there could be as many precision checks as sampling data.
- Page 3-3: The sections last sentence in the paragraphs indicates three monitoring sites in the network. It is our understanding that only one site is planned.
- Table 3-1 has UTM coordinates for the sampling site. It appears this location is #9 of the proposed sites. Is the monitoring site at site #9 or #8? The map in Figure 3-2 shows proposed site #9.
- Table 3-1 should include your AQS number for the site. We have assigned the following number for your site: **46-107-0101**
- Added a reference in this section for adding a final Appendix to the plan showing the actual measurements demonstrating the station meets the network design criteria found in 40 CFR Part 58 Appendix D including general pictures of the sampling station, 8 main wind directs from the shelter, and pictures of the equipment setup inside of the shelter.

6. **Section 4.0 Monitoring Program Description**

- Please indicate in each section the EPA reference or equivalent method number for each monitor type.
- Table 4-1 indicates the use of a Wedding model monitor. From the previous information and in 4.1.4 it appears the project will use a GMW high volume monitor with a critical flow device. The department does not approve the use of a Wedding style monitor for PM10 sampling.
- This section should include a paragraph on how the shelter internal temperature will be measured and how records will be kept to show compliance with the operational temperature range.

7. **5.0 Station Operational Procedures**

- It is my understanding the meteorological parameters will be collected using a 100 meter tower. Both sections 5.2.1 and 5.2.2 indicate the tower will be 60 meters high.
- This section should indicate the range and estimated sampling height for each of the criteria monitoring parameters.
- This section should include a section PM10 filter weighing listing who will be performing the filter weighing for the PM10 and how operation and quality assurance standards will be meet.
- Table 5-4 lists the Accuracy Goals for the air monitoring project. Two of these goals are different then required by our EPA oversight contact at EPA Region VIII.

  1st Continuous Gas Analyzers Zero/Span checks +/- 15% of span drift and zero check of +/- 0.015 ppm or 3% of full scale. These should be control limits (when operation of the analyzer needs to be reviewed to determine if data is valid). Most if not all of your collect hourly sample concentrations for sulfur and nitrogen dioxides are going to less than 0.015 ppm. An error rate of 15% and a zero error level of 0.015 would negate any concentrations you may collect. Because of the clean air conditions expected in this region you would suggest a limit of +/- 10% span drift and +/- 1% of full scale for zero.

  2nd Particulate Samplers Page 5-8, flow rate standard of +/- 7%. EPA requires that we have an accuracy level for flow rate verifications and audits on PM10 monitors to be no more than +/- 4%. In our use of VFC units in PM10 monitors this goal can be met without a problem. Please make this change to the table.

  Shelter Temperature – Please add the control range of 20 to 30 degrees C for the shelter internal temperature to this table.

8. **6.0 Quality Assurance Plan**

- This part of the plan will have to indicate the statistical assessments as listed in 40 CFR Part 58 Appendix A 4.0 as amended October 17, 2006 in the frequency required of Section 5.2 of the same appendix.
- Section 6.1 again shows 15% on precision and accuracy for the gaseous analyzer. The regulations indicate equal to or less than 7% (percent difference) for SO2, NO2, and O3 precision checks.
- Section 6.1 does not show what the precision and accuracy acceptance criteria for PM10. Please add the following acceptance criteria: Precision for PM10 is 5 micrograms per cubic meter (ug/m3) on samples with concentrations less than 80 ug/m3 and 7% percent difference on samples greater than 80 ug/m3. Source: 40CFR Part 50, Appendix J 4.0 (2005).
- Table 6-1 has been changed in the revised CFR Part 58 Appendix A. Please update this table with the audit ranges. See previous discussion on acceptance criteria.

- Section 6.5.1 Flow calibration of a volumetric flow control device may need only a one point check using a certified flow orifice against the lookup table flow.
- Section 6.5.1 should detail the PM10 Flow Verification check, acceptance criteria, and frequency required by Appendix A in 40 CRF Part 58.
- Table 6-2 the PM10 flow audit acceptance criteria at +/-10%. I believe these checks should also be at +/- 4%.
- Appendix A of 40 CFR Part 58 requires that PSD monitoring plans provide for the participation in EPA's National Performance Audit Program as detailed in Section 2.4. The quality assurance item needs to be added to your plan.
- DENR would like to conduct and audit of the monitoring site shortly after startup and sometime in the middle of final sampling quarter of the project. Please add these DENR audits to the monitoring plan.

  The audit will include but not limited to gas analyzer checks, flow checks, meteorological parameter checks, and review of onsite records. During the first DENR audit trip we would want to review the certification records for the calibration and audit devices being used on-site.

9. **7.0 Data Validation, Data Processing, and Reporting**

- Section 7.2.1 does not list all the filter conditioning criteria. Please add it in this section or in one of the previous sections.
- Section 7.3.5 Data Capture, Precision, and Accuracy – The ENSR SOP 2990-001 will need to be updated following the requirements in Appendix A of 40 CFR Part 58 as amended on October 17, 2006.
- Section 7.4 Data Reporting - DENR would like an electronic file copy of the raw data including voided data codes for each quarter or at the end of the project in Excel format for SO2, NO2, Ozone, and PM10. For the continuous monitors the file should include date, hour, and concentration. For the PM10 monitors it should include date and 24-hour concentration for each sampling day including co-located data. The file should also include raw data results from flow verification, precision, and accuracy checks to include date, check readings for the audit device and monitor. The electronic data files will be kept by DENR in house and will not be made available to the public until after Basin has submitted its application for a new power plant. After that time DENR will load the data results to the EPA national database.

10. In general changes will need to be made to the standard operating procedures listed in the Basin the Appendix of the NextGen Ambient Monitoring Plan so the requirements are consistent with the amended 40 CRF Part 58.

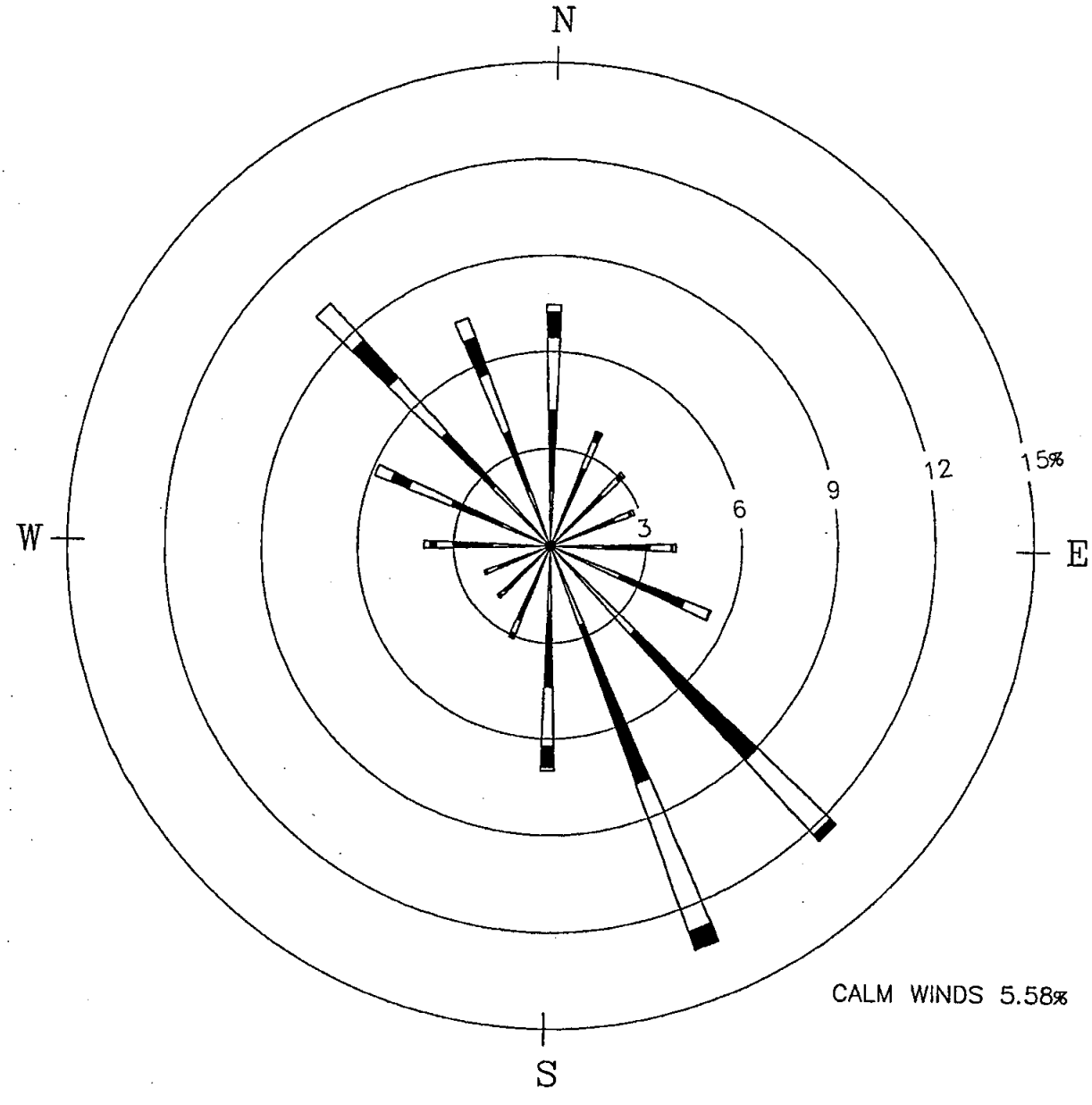
Attachment 2

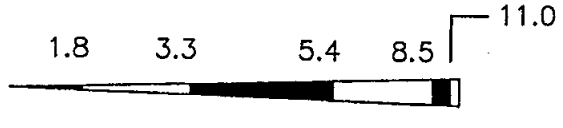
Wind Rose Charts

From

Huron National Weather Station

2000 through 2004





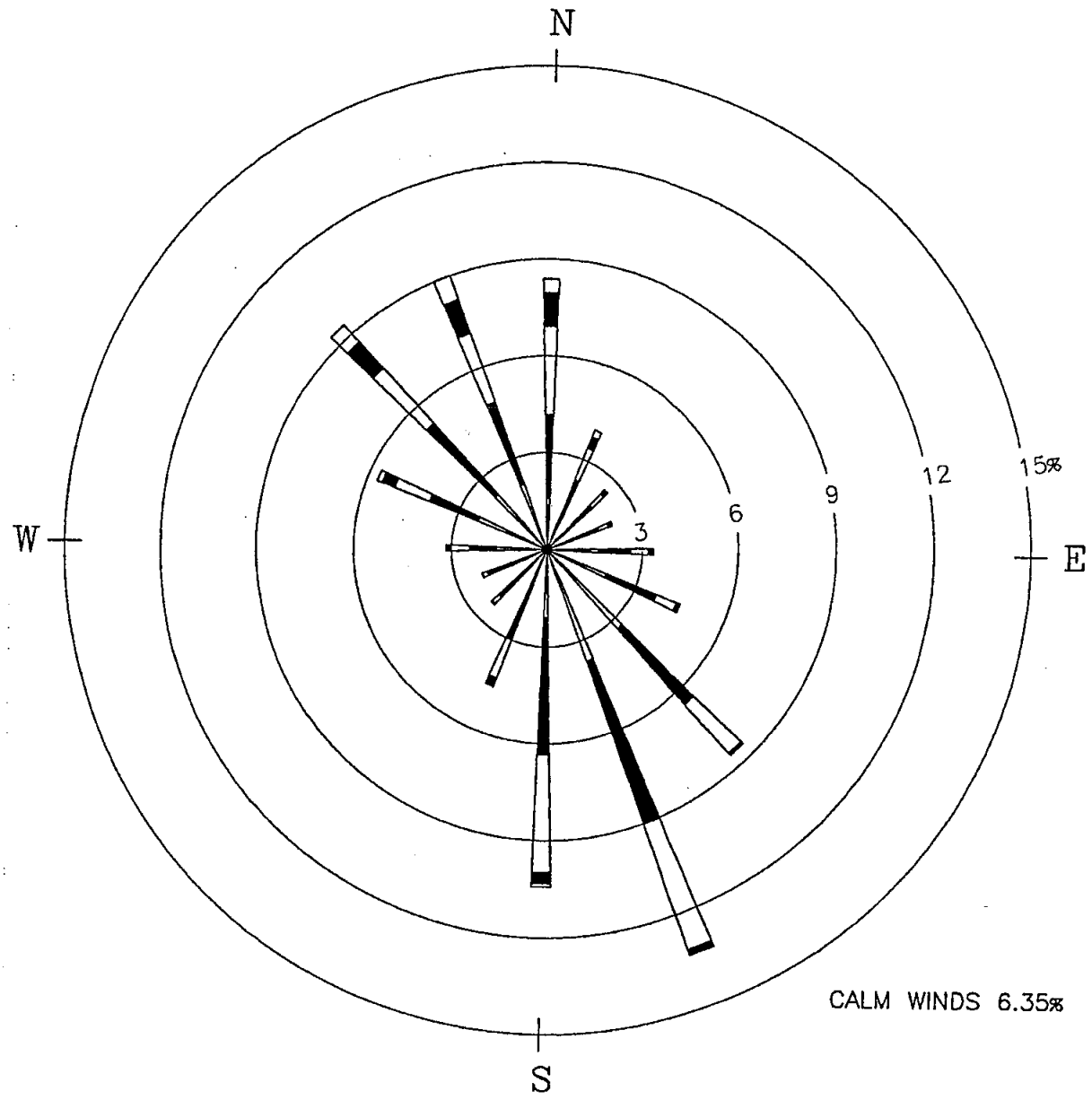
WIND SPEED CLASS BOUNDARIES
(METERS/SECOND)

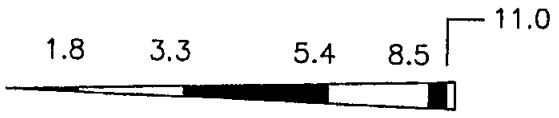
NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE OF EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE – WIND IS BLOWING FROM THE NORTH 7.5 PERCENT OF THE TIME.

FIGURE 1
WINDROSE

STATION NO: 14936
HURON, SD
PERIOD: 2000

BEE–LINE
SOFTWARE





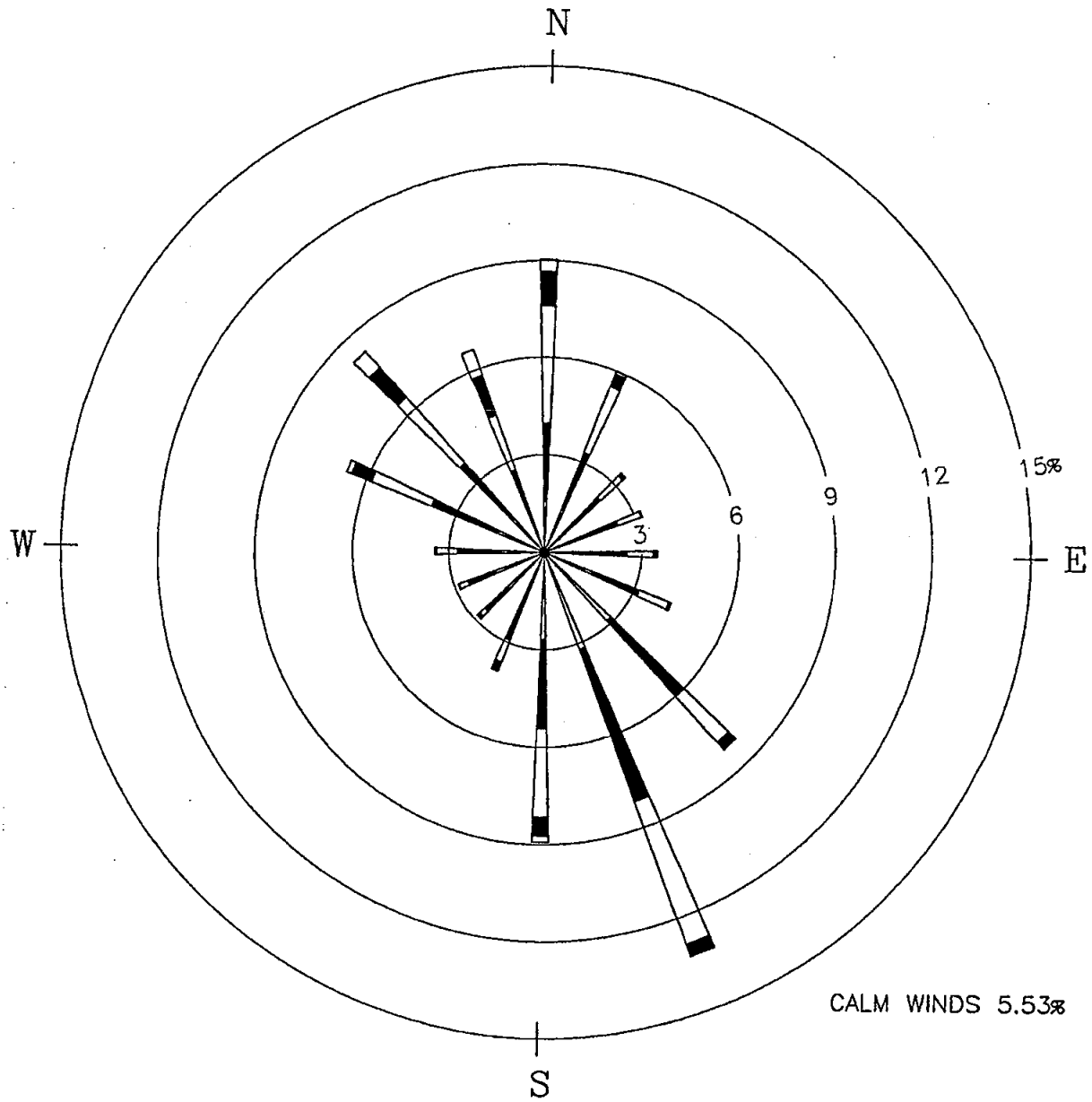
WIND SPEED CLASS BOUNDARIES
(METERS/SECOND)

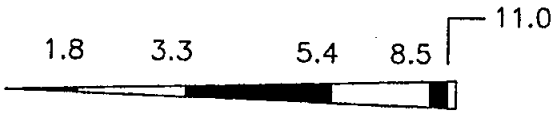
NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE OF EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE – WIND IS BLOWING FROM THE NORTH 8.4 PERCENT OF THE TIME.

FIGURE 1
WINDROSE

STATION NO: 14936
HURON, SD
PERIOD: 2001

BEE–LINE
SOFTWARE





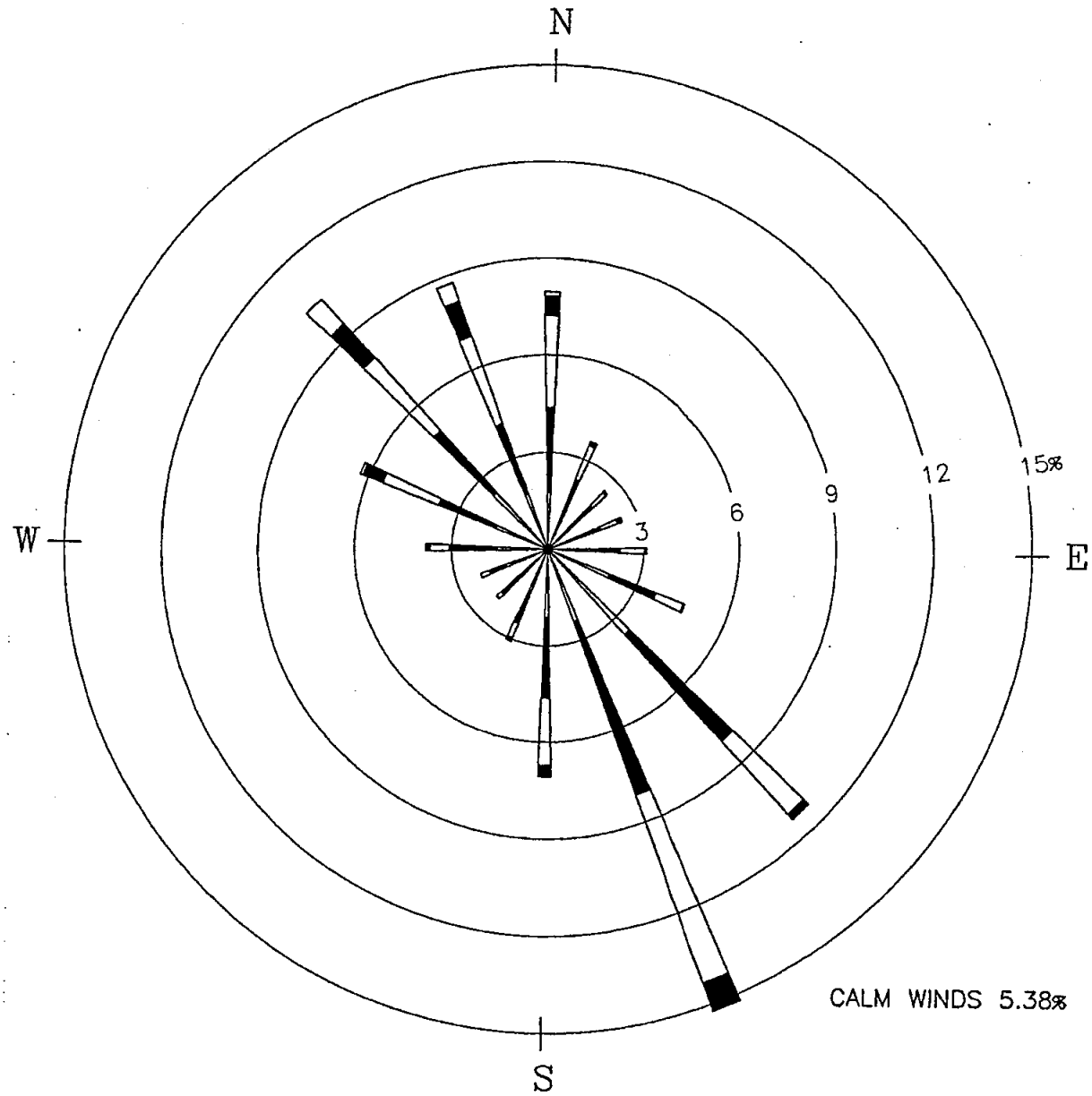
WIND SPEED CLASS BOUNDARIES
(METERS/SECOND)

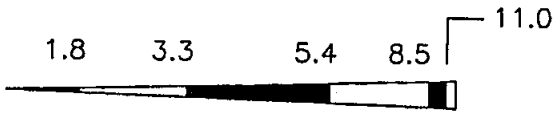
FIGURE 1
WINDROSE

STATION NO: 14936
HURON, SD
PERIOD: 2002

NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE OF EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE – WIND IS BLOWING FROM THE NORTH 9.0 PERCENT OF THE TIME.

BEE–LINE SOFTWARE





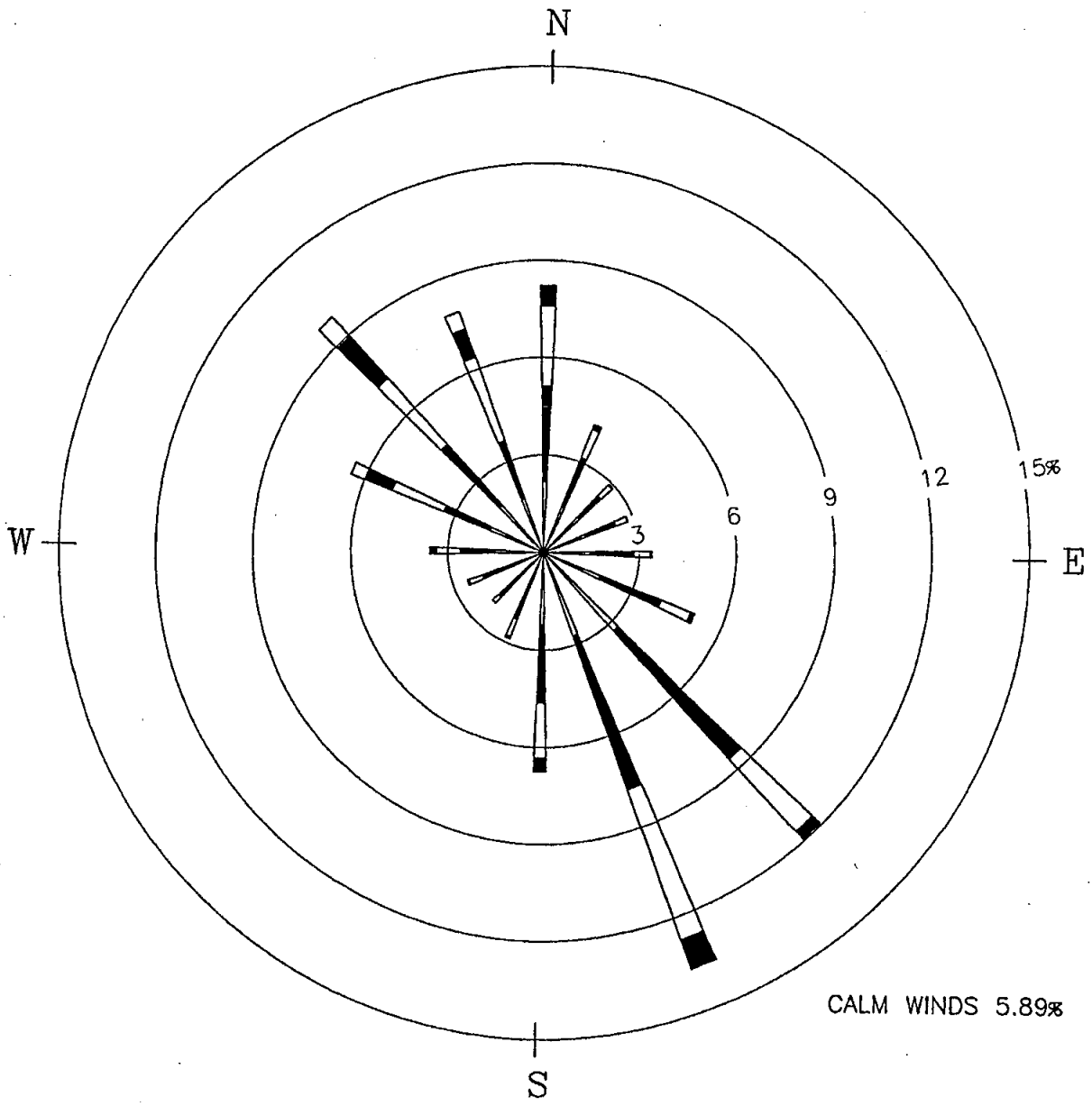
WIND SPEED CLASS BOUNDARIES
(METERS/SECOND)

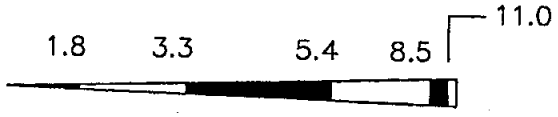
FIGURE 1
WINDROSE

STATION NO: 14936
HURON, SD
PERIOD: 2003

NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE OF EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE – WIND IS BLOWING FROM THE NORTH 8.0 PERCENT OF THE TIME.

BEE–LINE
SOFTWARE





WIND SPEED CLASS BOUNDARIES
(METERS/SECOND)

NOTES:
DIAGRAM OF THE FREQUENCY OF OCCURRENCE OF EACH WIND DIRECTION. WIND DIRECTION IS THE DIRECTION FROM WHICH THE WIND IS BLOWING. EXAMPLE – WIND IS BLOWING FROM THE NORTH 8.2 PERCENT OF THE TIME.

FIGURE 1
WINDROSE

STATION NO: 14936
HURON, SD
PERIOD: 2004

BEE–LINE
SOFTWARE